PB87-146338

Wastewater Management Districts
United States Experience

(U.S.) Environmental Protection Agency
Cincinnati, OH

Jan 87

U.S. Department of Commerce
National Technical Information Service

PB87-146338

EPA/600/D-87/026
January 1987

WASTEWATER MANAGEMENT DISTRICTS: U.S. EXPERIENCE

by

James F. Kreissl
Wastewater Research Division
U.S. Environmental Protection Agency
Cincinnati, OH 45268

WATER ENGINEERING RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
CINCINNATI, OH 45268

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA/600/D-87/026	2.
3. RECIPIENT'S ACCESSION NO. PB87-146338	
4. TITLE AND SUBTITLE WASTEWATER MANAGEMENT DISTRICTS: U.S. EXPERIENCE	5. REPORT DATE January 1987
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) J.F. Kreissl	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS USEPA, Cincinnati, Ohio 45268	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO. Inhouse
12. SPONSORING AGENCY NAME AND ADDRESS Water Engineering Research Laboratory- Cincinnati, OH Office of Research and Development U.S. Environmental Protection Agency Cincinnati, OH 45268	13. TYPE OF REPORT AND PERIOD COVERED Published Paper
	14. SPONSORING AGENCY CODE EPA/600/14
15. SUPPLEMENTARY NOTES Project Officer, J.F. Kreissl (com 569-7611/FTS 684-7611)	

16. ABSTRACT Despite extensive federal programs that have dramatically increased the number of people served by public sewers over the past few decades, the number of housing units served by onsite wastewater systems continues to rise, reaching 19.7 million in 1980. This figure represents an increase of 9 percent over the decade since 1970. When viewed in light of the present legislative and executive branch pronouncements of the impending end or significant reductions in these Federal programs, it is clear that local governments will face the challenge to maximize the service lives of existing onsite wastewater disposal systems.

In 1978 the U.S. Environmental Protection Agency initiated a study that had the following objectives: Inventory Existing Operating Management Experiences; Describe History, Functional Effectiveness, and Cost of Case Study Programs; Summarize Issues, Problems, Constraints, and Program Strengths; Define and Evaluate a Range of Management Alternatives and Program Requirements; and Recommend Procedures for Selection and Implementation of Management Arrangements. Eighteen case studies (9 local and 9 state) were selected. Evaluating these programs yielded several basic issues that were common to all management programs. For example, the four primary functions of a management program are planning, design, construction and operation/maintenance. Although longer lists are sometimes presented they can usually be categorized under these four headings. Also, the issues of financing and public education can also be appended, but these activities are of a somewhat separate nature in dealing with basic technical management programs.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group

18. DISTRIBUTION STATEMENT RELEASE TO PUBLIC	19. SECURITY CLASS *(This Report)* UNCLASSIFIED	21. NO. OF PAGES 5
	20. SECURITY CLASS *(This page)* UNCLASSIFIED	22. PRICE

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

NOTICE

This document has been reviewed in accordance with U.S. Environmental Protection Agency policy and approved for publication. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

WASTEWATER MANAGEMENT DISTRICTS: U.S. EXPERIENCE

James F. Kreissl
U.S. Environmental Protection Agency
Cincinnati, Ohio 45268

Despite extensive Federal programs which have dramatically increased the number of people served by public sewers over the past few decades, the number of housing units served by onsite wastewater systems continues to rise, reaching 19.7 million in 1980. This figure represents an increase of 9 percent over the decade since 1970. When viewed in light of the present legislative and executive branch pronouncements of the impending end or significant reductions in these Federal programs, it is clear that local governments will face the challenge to maximize the service lives of existing onsite wastewater disposal systems.

In 1978 the U.S. Environmental Protection Agency initiated a study which had the following objectives:

- Inventory Existing Operating Management Experiences
- Describe History, Functional Effectiveness, and Cost of Case Study Programs
- Summarize Issues, Problems, Constraints, and Program Strengths
- Define and Evaluate a Range of Management Alternatives and Program Requirements
- Recommend Procedures for Selection and Implementation of Management Arrangements

Eighteen case studies were selected, nine local and nine state case studies. Evaluation of these programs yielded several basic issues which were common to all management programs. For example, the four primary functions of a management program are planning, design, construction and operation/maintenance. Any management program must address these four functional areas. Although longer lists are sometimes presented they can usually be categorized under these four headings. Also, the issues of financing and public education can also be appended, but these activities are of a somewhat separate nature in dealing with basic technical management programs.

Although the planning function is the foundation for the entire program and constitutes the majority of early activity in the life of a management program, it soon becomes more of an overview or administrative role during the balance of the program life.

The design function is generally continuous, incorporates site evaluation as well as design activities, and probably is (along with the installation/construction function) the most important of all activities in terms of the long-term success of the program. No matter how well the area facilities are planned and operated, inadequate site evaluation and design can result in disastrous performance of the wastewater facilities and thereby endanger the viability of the management program. This is particularly true of programs which incorporate soil-based systems more so than with those employing point discharge/treatment systems.

As noted above, the installation/construction activity is particularly crucial with soil-based systems. With alternative sewer projects which involve growing service populations, at least one-third of the time of the operation and maintenance staff has been found to be required for construction/installation supervision. With subsurface soil absorption systems,

inadequate construction/installation practices can completely negate a comprehensive site evaluation and design, resulting in early failure of the system.

Operation and maintenance requirements are almost entirely a function of the technologies employed in the management program area. If all systems are individual home conventional septic tanks, for example, an inspection pumping program may be all that is required for operation/maintenance (O/M). Conversely, a management area exclusively employing individual home aerobic units could require scheduled maintenance to each unit several times per year and a skilled maintenance staff for emergency repairs. Alternative sewer systems generally require both an annual preventive maintenance visit and an emergency response capability. To varying degrees, the water quality monitoring responsibilities of the management program are included in this functional activity.

The U.S. EPA study resulted in several publications which are designed to assist responsible individuals and agencies in the step-by-step development of management programs in rural communities by identifying the salient issues and providing examples of successful management programs. These reports are indicated as references (1) (2) and (3). As of this time a complete directory of small community management entities in the U.S. has not been developed.

REFERENCES

1. Ciotoli, P.A. and K.C. Wiswall. Management of Onsite and Small Community Wastewater Systems. EPA Report 600/8-82-009, 1982.

2. Weston, R.F., Inc. Management of Onsite and Small Community Wastewater Systems - Interim Report. Municipal Environmental Research Laboratory Publication No. M687 (1979).

3. Flowers, J.E. Management of Wastewater Treatment Systems. In Proceedings of 3rd National Symposium on Individual and Small Community Sewage Treatment. ASAE Publication No. 1-82, 1982.